Bus Portion
Supplemental Tour Script
June 29, 2016

NOTE: Read **non italicized** portion verbatim.

Guide visitors on to the bus at 703-46A parking lot, collect the $10.00 for lunch, pass out the folders, discuss any safety and security information that needs to be shared with the visitors before departure, discuss escort requirements and any TLD/Rad Con requirements to be followed during the tour. Pass out the sign-up sheet. Site Security will check the bus and verify all visitors have their badges and the bus is ready to go. Security will escort the bus to the barricade. Address any additional notification or escort requirements if foreign nationals are on the bus/tour.

Formally start tour by introducing self. "My name is _____, I'm with the Savannah River Department of Energy. I will be your primary tour guide and your escort for today. I also have Mr/Ms _____ on the bus with me to assist with escorting you today. I request you stay within visual contact of me or one of the other escorts at all times except when we are in the facilities where your escorts will be DOE facility personnel . In the facilities you will be divided into smaller groups to help facilitate the tours. While you are in the facilities, your escort will be one of the facility tour guides"

Identify the DOE tour escort who will be collecting the 3x5 index cards at the end of the tour.

"This tour is scripted for consistency, and no questions will be answered during the tour by me, the DOE facility representatives, any escorts, tour guides, or any persons you may encounter. Exceptions are only for an emergency. In all emergency situations follow your escorts. We will allot time for bathroom breaks along the tour at various stops and have bottle water on the bus.
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A tour guide packet has been provided to each of you which include: the tour schedule, a site map, the Effluent Treatment Facility building layout and process flow diagrams, a map of the 3H Control Room, and 3x5 index cards. If you have any questions, please use the 3x5 cards to jot down questions. I have extra cards available upon request. The cards will be collected at the end of the tour by me. Your questions and the answer will be posted on the Savannah River Site Liquid Waste Acquisition website.

I would like to now give you a quick safety brief. During the tour today we will be boarding and un-boarding the bus numerous times. Please use the hand rail at all times. We will be walking through industrial type environments where work activities will be taking place. We ask that you stay with your group at all times, be aware of your surroundings, follow all signs and posting, do not cross any barricades, and please follow the instructions of the DOE facility personnel while in the facilities. You will be walking on uneven surfaces and using stairs. When on the stairs please use the hand rail at all times.

It is a hot and humid day, so please stay hydrated and ask for water if you need it. If you need any assistance during the tour please don't hesitate to let me or one of our escorts know and we will

get you some assistance. Our number one goal today is to keep everybody safe. Thank you! We will now start the tour."

Pass out cards to anyone who needs them. Direct the bus driver to follow the security escort to the site barricade. Collect the sign-up sheet and keep for accountability to give to the FRs as we enter the facilities. Let the visitors know that when they arrive at ETF we will be joined by the DOE Facility Representatives who will be our escort while we are at their facility and they will have a safety brief before we start the facility tour. Once the bus has stopped for unloading at ETF, have the Facility Rep address the group and provide any safety briefing. After the briefing, have the visitors break into the smaller groups and follow their FR.

"We are now at the Effluent Treatment Facility. We will be getting off the bus for this portion of the tour and meeting two of Savannah River Department of Energy Facility Representatives. If you have any questions during this portion of the tour I ask that you write them down on the index cards provided and turn them in to me please. The Facility Reps will not be able to answer any questions. I'm now going to turn the tour over to Mr.(s) and they will point out some of the structures of the Effluent Treatment Facility."

Note: The ETF script is written by the FRs will be read verbatim at this point until this portion of the tour is complete and the visitors are ready to get back on the bus. The script is attached.

At the end of ETF tour, the FRs will bring their groups back to the bus location. The tour escort will assist the visitors in boarding the bus. Prior to boarding the bus all the visitors will have the opportunity to use the restroom. All visitors will maintain escort requirements.

"We are now proceeding to the H-area Tank Farm. This is a good time to write down any questions you might have. I have additional cards if you need any."

Remind the visitors that when the bus stops at H- tank farm, the Savannah River DOE Facility Representatives will be our escort while we are at their facility. Once the bus has stopped for unloading in H-tank farm, have the Facility Reps provide any safety briefing if needed. After unboarding, the bus the group will walk up some stairs to the conference room on the second floor of 241-2H where the tour will begin. Remind the visitors to use the handrails.

"We are now at the western edge of the H-Tank Farm where the consolidated control room and the 3H evaporator are located. I'm now going to turn the tour over to Mr.(s) _____, who will tour you through these facilities.

Note: The H-Tank Farm script written by the FRs will be read verbatim at this point until the H-Tank Farm and ETP tour is complete and the visitors are ready to get back on the bus. The script is attached.

After H-tank farm tour, the visitors will re-board the bus and head to Salt Waste Processing Facility (SWPF). The SWPF tour will be a walking tour of the facility. Once the bus arrives at SWPF, Pam Marks will board the bus and start the tour portion of SWPF.

"We are now at the Salt Waste Processing Facility where we plan to get off the bus for a walking tour but first Pam Marks the DOE Project Director will join us on the bus. "At this time, I am going to turn the tour over to Ms Pam Marks."

After Pam completes her brief the visitor will unboard the bus in groups of 10 to tour SWPF.

Note: : The SWPF script written by the FRs will be read verbatim at this point until the SWPF tour is complete and the visitors are ready to get back on the bus. The script is attached.

After the SWPF tour, the visitors will return to the bus and proceed over to DWPF 704-S where lunch will be served. Visitors will exit the bus in front of 704-S and be directed to Room 22 and the restrooms. Escorts will remain with the visitors during the lunch break. Lunches will be provided to the visitors and the visitors will remain in room 22 until time to resume the tour. After lunch, the tour will resume by starting a DWPF video in room 22.

"I would like to ask that everyone begin gathering to continue our tour for the day. I will now turn the tour over to Keith Sandroni as he starts the video."

After the DWPF video is complete everyone will meet in the lobby of 704-S to board the bus and continue the tour. The visitors will have an opportunity to use the restrooms in 704-S before moving to the next tour stop. The visitors will stay on the bus for the DWPF facility portion of the tour and just do a drive-by. A DOE FR will board the bus with the visitors and will conduct the DWPF portion of the tour. The DOE FR will introduce himself and point out parts of the facility during the drive-by. The FR will read from the script.

Note: The DWPF script written by the FRs will be read verbatim at this point until the DWPF portion of the tour is complete. The script is attached.

Once the DWPF drive-by tour is complete the bus will drive over to the Saltstone Facility for a walking tour. Once the bus arrives at Saltstone the FRs for this portion of the tour will be introduced and the tour will be turned over to them.

Note: The Saltstone script written by the FRs will be read verbatim at this point until the Saltstone portion of the tour is complete. The script is attached.

Once the Saltstone portion of the tour is complete, the group will board the bus and continue the tour by heading to SRNL. The bus will go by DWPF to drop off the DWPF/Saltstone tour guides. Direct the bus driver to SRNL. Let the visitors know that when they arrive at SRNL we will unboard the bus and proceed through a gated access. We will be joined by the DOE SRNL Representatives who will board the bus and provide a safety brief and escort requirements while on the tour. After the briefing, have the tour group un-board the bus, proceed through gate access, and break into the smaller groups and follow their escort and tour guide.

“We are now at the Savannah River National Laboratory. This will be the last stop of today’s tour. You will not be able to take your cells phones or any electronic devices into the lab. You can leave them on the bus and can pick them up when you return. We will have more stringent escort requirements while we tour SRNL and ask for your patience as we process through the gate and organize into groups of ten or less.”

“Once we have completed the SRNL portion of the tour , this will concludes today’s tour. I ask that as you come back out the gate that you collect any belongings you may have left on the bus and hand back you security badge to one of the escorts. I suggest that it you have any final questions to please write them down on your index card and give them to me. Your question and the answer will be posted on the SRS Liquid Waste Acquisition web page. Thank you. I will now turn over the tour to Patrick Jackson to start the SRNL tour.”

Note: The SRNL script written by the FRs will be read verbatim at this point until the SRNL portion of the tour is complete. The script is attached.

Effluent Treatment Plant and H-Tank Farm Script
For Supplemental Tour
June 29, 2016

Effluent Treatment Project (ETP)

Note: All non-italic text will be read verbatim.

(FRs will meet the bus on the south side of ETP in parking lot. Tour group will exit bus and FRs will be introduced by tour lead. FRs will provide safety brief. Cautions noted below will be read to visitors prior to starting tour.)

"All tour participants must remain with the group. During the tour, please watch your step, as there are potential tripping hazards such as uneven pavement, rocks, hoses, and extension cords that may be in our walking path. In the event of an alarm or evacuation announcement, please follow your tour guide to the designated rally point. Our tour will take us to the Effluent Treatment Project (ETP), also known as Effluent Treatment Facility (ETF)."

(FRs will divide the tour group into two smaller groups to facilitate the tour of ETP. Each smaller group will tour the same areas but their start times will be staggered. Start the tour in view of the Treated Water Tanks outside of ETP - Building 241-81H. Point out the Treated Water Tanks when discussed and any equipment underlined in the script below.)

"The Effluent Treatment Project (ETP) was designed and built to collect, treat, and process low level radioactive and chemically contaminated wastewater. ETP Primary sources of wastewater include F & H Canyon Facilities, F-Area Laboratories, F & H Tank Farm evaporator overheads, and water from groundwater well monitoring sampling activities. The ETP facility has been in operation since October 1988. The ETP facility typically discharges 6–10 million gallons of treated water annually. Operators in ETP maintain a Level "A" or Level "D" state certification as physical/chemical treatment plant operators issued by the State of South Carolina. The ETP process is primarily located in building 241-81H Treatment Building and 241-84H Control Building with various other structures located in the vicinity of 241-81H. The ETP process was designed to operate at an average capacity of 165 gpm and with a sprint capability of 300 gpm for short durations. The ETP process is broken down into seven segments to limit radioactive inventory in each segment. The following segments are process locations which are managed by the ETP organization:

1. F-Area Cooling Water Basin
2. F-Area Retention Basin
3. H-Area Cooling Water Basin
4. H-Area Retention Basin
5. Lift Stations, Force Main Valve Pit, Wastewater Collection Tanks (WWCTs), Organic Removal (OR) System (Mercury Removal and Activated Carbon Columns), and Cold Chemical System Storage Tanks
6. Treatment Building, Control Building, Other Outside Tanks, Outfall at Upper Three Runs

Creek (UTRC), and High-Efficiency Particulate Air units.

7. Waste Storage Area east of the Treatment Building.

Waste generators comply with their individual Waste Compliance Plans (WCPs) when sending their waste streams to ETP to ensure collectively that ETP stays within its approved Waste Acceptance Criteria (WAC). The WAC/WCP process ensures ETP stays within its processing capability and does not exceed its allowed radiolytic inventory.

The resulting treated water is stored in one of three 155,000 gallon Treated Water Storage Tanks. Treated water is sampled for permit compliance and released from these tanks to Upper Three Runs Creek which feeds into the Savannah River."

(Enter ETP – Building 241-84H- Standing by control room door and pictures depicting the ETP process.)

"The control room section of the plant contains the control room, maintenance shop, chemical laboratory, radiological control laboratory, personnel change rooms, and a motor control center. The ETP process is computer controlled via the control room computer console. The control room is manned 24 hours a day, 7 days a week."

"Also contained in this building passed the change rooms are the chemical and the radiological control laboratories where many chemical and radiological samples are analyzed for the Tank Farms."

(Use the posted pictures of each element as visual aid.)

"In your handout (hold up a copy) is a diagram of the basic overall wastewater treatment process we will be touring. The treatment process can be generalized to consist of the following elements listed in processing order; pH adjustment, filtration of suspended solids, organic/mercury removal, reverse osmosis to remove dissolved solids, and ion exchange treatment."

"We will not be entering the treatment building. The equipment that is in the treatment building associated with the treatment process are the pH adjustment Tanks, reverse osmosis (RO) units, ion exchange (IX) columns, the Norton filters, and the Evaporators. I will provide a short explanation of the purpose of those components in the treatment process."

(Point to visual aid for PH adjustment tanks.)

"PH adjustment is performed in a two-step process in the pH adjustment tanks. A pH range of about 6.0 to 9.0 is required to cause the flocculent and other dissolved solids to precipitate out of solution and become suspended solids."

(Point to visual aid for Filtration.)

"After the pH adjustment, solids are precipitated out and removed during the filtration process. Filtration is completed via a 3- stage ceramic Norton filter system. "

(Point to visual aid for Reverse Osmosis.)

"The wastewater is processed through the reverse osmosis system to remove dissolved solids. Permeate from the RO system goes to the Ion Exchange System Feed Tank for further treatment. Concentrate from the RO system is returned to the evaporator system feed tanks."

(Point to visual aid for Ion Exchange.)

"The ion exchange (IX) columns are used to remove heavy metals, cesium, and strontium. The ion exchange system components consists of two tanks, one agitator, two feed pumps, two mercury removal columns, three cation columns, and two cartridge filters."

(The Evaporator System.)

"The evaporator system is used to reduce waste volume. At various points throughout the process, waste streams are diverted from the process and sent to the ETP evaporators for volume reduction. The resulting evaporator bottoms (evaporator concentrate) is collected in two waste concentrate tanks (with agitators, capacity 1,850 gallons) located next to the evaporators. The concentrate will eventually be transferred to Tank 50 in H Tank Farm for storage. Evaporator overheads are returned to the ETP process for reprocessing."

(Proceed to the south side of ETP and enter the Radiological Buffer Area (RBA) from the gate on the road. No food or chewing gum allowed. Proceed to the open area near the Treatment Building Exhaust System.)

"The ETP has multiple ventilation systems and air handlers that provide conditioned air to personnel workspaces and exhaust air from the potentially contaminated areas of the Control Building and the Treatment Building. The Treatment Building Exhaust System located here has 3 fans that function to remove air from the ETP Treatment Building, which is maintained at a slight vacuum."

"Wastewater from the H-Area Force Main Valve Pit is stored in two 485,000 gallon Wastewater Collection Tanks. Here the wastewater is pretreated by pH adjustment and the addition of a flocculent."

"Wastewater from the Norton filters is sent to the Organic Removal system. Organic Removal includes Mercury removal columns (these columns are outside, next to the wastewater collection tanks) and activated carbon beds used to remove organic contaminates and heavy metals."

"The ETP Cold Chemical Storage is used to store, mix, and transfer chemical solutions at the desired concentrations to support various ETP process and support systems. Chemicals in the storage system include nitric acid, caustic, and aluminum nitrate"

(Proceed to walk to northeast corner of building by the evaporator feed tanks/pumps Point out the location of equipment as discussed.)

"Two evaporator feed tanks (capacity 24,000 gallons each) collect various process waste from the ETP process systems. These influents include items such as reverse osmosis concentrate,

reverse osmosis cleaning solutions, filter concentrate, filter cleaning solutions, ion exchange cation column regeneration solution, evaporator sump water, and any other cleaning flushes. Two evaporator feed pumps transfer waste from the feed tanks to either evaporator."

(Proceed to walk to northeast corner of building by the condensers and condensate pumps. This could be a higher noise area depending on running equipment and will need discussion from a distance.)

"The air-cooled condenser condenses the evaporator overheads where the condensate is collected in the 325-gallon Process Condensate Hold Tank. The 13 foot diameter condenser fans are axial flow-automatic pitch fans, driven by 50-horsepower motors. The condenser fans are monitored for vibration to prevent damage."

(Proceed to walk from the northeast corner of building to north side to Waste Concentrate Hold Tank vault)

"The 30,000 gallon Waste Concentrate Hold Tank located in this vault was added to ETP to facilitate large waste transfers from ETP to Tank 50 in H Tank Farm or to Saltstone."

(Proceed to walk from the west to Ion Exchange Feed Tank area on north side of building.)

"The ion exchange system receives water from the reverse osmosis system. PH is adjusted in the Ion Exchange pH Adjustment Tank. The Ion Exchange Feed Tank is used as a supply reservoir for the ion exchange feed pumps. The feed pumps provide the motive force through the ion exchange process and to the treated water storage tanks."

(Proceed to walk from the RO tank/pump area on north side of building. This could be a higher noise area depending on running equipment and will need discussion from a distance.)

"Wastewater from the EPT Organic Removal System passes through a cooler, then into the RO PH Adjustment Tank where nitric acid is added to the water flow into the tank. The waste water from the PH adjustment tank overflows into the Reverse Osmosis Feed Tank. The feed tank provides the net positive suction head to operate the RO feed transfer pumps. The feed pumps provide the approximate 800 psig water supply to the RO filter trains."

(Exit the ETP building with assistance from radiological control personnel. Exit will be through the electrical area and proceed out the double doors to the north and to the tour transportation. Provide notice to the ETP Shift Manager the tour group has left his facility. The FRs will board the bus with the tour group for the H-Tank Farm tour stop.)

H-Tank Farm 3H Control Room

(The escorts will bring the tour group up the staircase and into the conference room located in 241-2H. Escorts will turn over tour group to FRs. Entry into the control room is controlled/restricted. Please ensure tour members stay with guide at all times. Ensure tour members stay out of the at-the-controls-area. Discuss any safety brief if needed)

"You are now at the western side of the H-area Tank Farm. The previous tour that was conducted as part of the Pre-Solicitation Conference included tours of the F- and H- Tank Farm. For today's tour, we are going to show you the 241-2H Control Room (commonly called the "3H Control Room") and the H-area Tank Farm west hill. We have an aerial poster over here *(point to the poster)* that I would like to use to show you our current location in referenced to the H-area Tank. On the Pre-Solicitation Conference tour, you entered H-tank Farm on the eastern side just off the left side of the poster *(point to the poster).* In your handout *(hold up a copy*), you have a diagram of the 241-2H Control Room. The control room has been retrofitted and partially consolidates equipment and alarms for both F- and H-Tank Farm. The control room monitors systems and equipment that support Tanks 1-16, 21-24, 29, 37, 40-42, and 48-51, including vamps, HTF, East and West Pump House, FTF West Pump House, HDB 1-6, FDB 1-3, including FPP-1, H-Catch Tank, F-Catch Tank, the 3H Evaporator System, the Inter-Area Transfer Line, HPFP (High Point Flush Pit), HDB 8 DCS, ARP, 96H, MCU and Cold Feeds. The diagram should help you understand the layout and the various stations in the control room. General access by non-on-duty personnel is via the Shift Manager's office who grants permission for entry. The CRO grants permission for entry into the control room past the gate."

"We will now break into smaller groups to facilitate going to the control room and the west hill. We ask that when you enter the control room to refrain from talking. We will give each group that enters the control room a few minutes to observe the operations and then we will come back over the conference room and repeat the process until all the groups have toured the control room. During this same time we will also be taking small groups outside to the west hill."

(The two FRs will count off groups. The first FR will take a group of approximately 5 to 6 individuals and escort them to the control room. At the same time, the second FR will take groups of approximately 10 individuals and escort them to the west hill. Individuals remaining in the conference room will have additional escorts to assist with assuring everyone stays in the conference room until they can tour both the control room and 3H Evaporator. The smaller tour groups will leave the conference room with their designated FRs and go across the hall to the control room or out the double doors at the north side of the building to the catwalk and on to the west hill.)

Tank 35

(The small group has walked to the west hill and is now facing north with Tank 35 in the foreground in front of you; point out Tank 35 and the chromate cooling water system lines for the deployable coils.)

"Tank 35 is a Type IIIA Waste Tank; however it is unique in that it has deployable coils such as those on Type III tanks as can be seen by the chromate cooling water lines on this tank top. The primary tank is made of annealed carbon steel and is 85 feet in diameter and 33 feet in height with a maximum operating capacity of 1.3 million gallons."

(Point out 3H evaporator)

242-25H Evaporator – (point to the evaporator)

"242-25H Evaporator commonly referred to as 3H Evaporator, is the newest and largest evaporator in operation at SRS. 3H Evaporator was placed in service in December 1999

and has an evaporator pot volume of 19,000 gallons; for comparison, 2H and 2F evaporator pot volume is 3,600 gallons. The 3H Evaporator system receives waste from Tank 32 and has the capability to drop concentrated waste to either Tank 30 or Tank 37. Waste processed in 3H Evaporator is primarily received from H Canyon or F Tank Farm. 3H Evaporator uses 325 lb. steam to evaporate/concentrate the waste, for comparison, 2H and 2F evaporators use 150 lb. steam. 3H Evaporator process is totally enclosed with separate building and process cell ventilation systems. Enclosure of the evaporator permits maintenance operations to be performed without regard to wind and other limiting weather conditions. Process enclosure also permits better control over the spread of contamination. The evaporator has an adjacent service building which contains the overheads tanks, steam reducing stations, downstream tube bundle flash tank and condensate tank, building ventilation HEPA filter banks, gang valve assemblies, and flush water supply pumps."

"On Wednesday (2/17/16), the 25H Evaporator was shutdown after a leak was discovered inside the 25H Evaporator Cell. Preliminary evaluations have concluded the source is likely a small leak from the evaporator vessel near the height of the tube bundle. Investigations continue for pin-pointing the exact location of the leak-site."

"Multiple disciplined teams have also been formed to evaluate options for (1) cleaning of the evaporator cell and evaporator vessel, (2) repair of the vessel leak-site, (3) replacement of the evaporator vessel, (4) flow-sheet impacts to production goals, (5) allowable limited operations, (6) Tank Farm water management with decreased evaporator capacity and (7) determine the probable cause of the evaporator leak."

(Return the group back to the conference room the same way you came out to the west hill. After everyone has to toured both the control room and west hill, escorts will lead the tour back to the bus))

Salt Waste Processing Facility Script
For Supplemental Tour
June 29, 2016

SWPF Introduction

(Pam Marks, the SWPF Project Director, will greet the tour group on the bus and start the tour.)

"This is the Salt Waste Processing Facility. On this tour we'll walk through the major process areas. We will stop several times and describe some important features. We will be climbing stairs and walking on grating or over potentially uneven surfaces. Please help protect your safety and those around you by holding handrails and watching your step."

"The facility recently reached a major milestone - construction complete. As you walk through the facility you will see scaffolding and equipment that is being used for testing."

"We are beginning system testing. We estimate the system testing will take about one year with another five or six months of Integrated System Testing with water. After integrated system testing, we will begin using chemicals and simulated non-radioactive waste to further test the performance of the plant. In parallel, we will be preparing personnel who will operate and maintain the plant."

"We estimate approval for radioactive testing in December 2018. "

"We will now take you in smaller groups to start the tour."

(The tour group will unboard the bus in smaller groups for the walking tour. The smaller groups will have staggered start times. Each group will take the same tour route. Pam will lead the first group followed by other SWPF guides every 4-5 minutes. Each SWPF tour guide will board the bus introduce themselves, and gather up the next group. The tour guide will take a few minutes to conduct a safety brief. Note any safety equipment or PPE requirements for the tour. Note that cell phones or cameras are not to be used during the tour. And ask the group to keep side conversations to a minimum to allow everyone to hear the tour guide.)

(Safety glasses are required. The SWPF tour guides will assist with handing out safety glasses. Tour guide will let everyone know the route for today's tour was pre-approved to allow the tour group to proceed without hard hats and over-the-ankle work boots. The tour guide will remind everyone to stay with them during the tour, to pay attention to their escorts who may warn of emergent hazards, and to please refrain from touching equipment or placing hands in areas where potential hazards can exist.)

Note: The tour will consist of walking through various rooms and areas of SWPF. As the SWPF tour guide stops the group at various points or rooms, the below script will be read Verbatim.

Outside the Facility Entrance – Loading Dock

"This is the loading dock that will handle all materials into and out of the facility with the exception of cold chemicals, which has its own dock.

From this location you can see the Central Processing Area. It is a three story, concrete structure surrounded by support facilities. It is seismically qualified as Performance Category 3.

The exhaust stack is to your left. The combined exhaust from the facility is about 85,000 cubic feet per minute. Air exhausted from the stack is HEPA filtered and monitored prior to release.

As we proceed into the facility, you will be passing the operations support areas. There are signs on the doors designating the various rooms."

Mechanical Room, Room 114

"This is the Mechanical Room which contains the Air Handling Units for the Process Building Ventilation System and the Control Room Ventilation System. The Process Building Ventilation System provides filtered and conditioned outside air for distribution throughout the building. . The Control Room System is separate and independent of the Process Building Ventilation System. It maintains positive pressure in the Control Room and has the capability to filter and condition either outside air or 100% re-circulated air allowing the Control Room to be occupied to an upset or abnormal condition."

The Electrical Room

"This is the largest of the three Electrical Rooms and provides power to the Central Processing Area. The other two smaller electrical supply rooms are for the support facilities. This room contains the motor control centers for electrical power distribution to Central Processing Area equipment, lighting, and controls. We receive power from two 13.8 KV electrical supply poles. The facility can operate off of either supply for an unlimited time.

The maximum required power for the building is estimated to be about six Mega-watts"

The Control Room

"This is the Control Room. The facility will be staffed 24 hours per day, 7 days a week during operation. The facility has a combination of remotely and locally controlled and operated processes. The Control Room has four work stations and a supervisor work station. The process will be operated using a Distributed Control System to provide process automation. Closed

Circuit Cameras throughout the building will be used on the overhead TV screens to allow monitoring of the building during operations.

To the south of us are two rooms that contain the servers for the Distributed Control System and the Uninterruptable Power Supply.

We will now exit the Control Room and enter the North Pump and Valve Gallery. You will pass six concrete shielded areas, constructed in a Labyrinth design. Note the shield doors or fences that will locked during operation to shield the workers from radiation levels in the rooms."

The Pump and Valve Gallery (Room 131A)

"You are now in one of sixteen pump and valve galleries. On the other side of the four feet thick concrete wall is a Dark Cell containing high radiation waste tanks. The equipment in the Dark Cells was designed to operate without maintenance for the life of the facility. The pump and valve galleries are designed to house equipment that require maintenance.

The Labyrinth design shields the high activity equipment during radioactive operations. During operations the dose rate in this room could be as high as 100 Rem/hour. The dose rate to personnel in the hallway outside is expected to be less than 0.5 millirem per hour.

This room includes air operated valves that allow transfer of material and flushing of transfer lines. The room can be decontaminated using the overhead showers and the floor sump. A CCTV camera is mounted on the wall for remote observation.

The larger pump recycles and transfers material inside the building through the heat exchanger. This Coriolis Flow Meter measures density and flow rate. This smaller pump transfers the concentrated sludge for processing in DWPF. The pumps are equipped with pressurized barrier fluid tanks to allow operators to detect a pump seal leak and shut down the pump before any loss of liquid."

The AFF Filter Area

"This is the Alpha Finishing Facility. This operation removes residual Strontium and Actinides in a second strike, resulting in a decontaminated salt solution. This operation is used, if necessary, to ensure waste acceptance criteria for the Saltstone facility are met.

This area contains cross flow filters and four large vessels.

The cross flow filters you see here are the same design as those used in the Central Processing Area. These filters remove the Actinide and Strontium using Monosodium Titanate. The crossflow filters can filter particles as small as 0.1 micron. The concentrated solution recycled back to the Central Processing Area."

“The decontaminated salt solution is stored in the second large tank that we will be passing. These tanks are similar to the tanks in the Central Processing Area.

We will now proceed through the Alpha Finishing Facility to the Cold Chemical Area. As you walk though this area, you will see temporary piping installed for testing. Please use caution as you walk.”

The Cold Chemical Area

“This is the Cold Chemical Area which contains storage tanks for chemicals to support processing. This facility has the capability to receive, prepare, and store chemicals. From Left to right the tank areas are for water and deionized water, nitric acid, neutralization, caustic, oxalic acid, and solvent each segregated in their own diked areas. There is small support laboratory for cold chemical analysis. This entire area is isolated from the rest of the building and has its separate ventilation system and loading dock.

We will now proceed outside through the cold chemical loading dock. We will go down some stairs then on to the gravel area west of the central processing area. Again, I want to remind you to hold on to the handrails as we proceed up and down steps and watch your step on curbing and on gravel.”

Outside, West of the CPA

“The large building to the left of us is the compressor building which houses plant air compressors and air dryers which supply the compressed air loads in the facility. The cooling towers cool the compressors.

There is the Standby Diesel Generator which serves as a back-up power to selected electrical loads.

The high activity waste transfer lines exit the building under these yellow posts. There are four – four inch stainless steel transfer lines which are paired inside two one foot diameter secondary containment lines.

We will now head back into the facility to the 2nd level Contactor Room. Before we walk up the stairs you will be able to see the South Pump and Valve Galleries to your left. These are similar to the one you went in, however smaller and support the Contactors above them on the second floor.”

The Contactor Room

“The Contactor Room supports the Cesium removal process and contains 36 centrifugal contactors. The contactors mix and separate the Cesium from the Salt Waste using centrifugal contactors and counter flow of an organic solvent. The Cesium laden material enters in the room

at the far end, and is extracted using a specifically designed chemical which is dissolved in an organic solvent resulting in a decontaminated salt solution and a Cesium enriched concentrate. Decontamination increases as the material passes through each subsequent contactor resulting in a decontaminated salt solution is send to Saltstone and a concentrated Cesium solution which is sent to the Defense Waste Processing Facility.

The incoming flowrate of the tank waste is 21.5 gallons per minute and concentrated solution is 1.4 gallons per minute.

Each of the 36 contactors rotates at a speed of 1800 to 2100 revolutions per minute and is controlled by variable speed drives located at the far side of the building.

Please observe the hand wheels in the hall. These handles manually operate valves located in the overhead of the room below and provide distance and shielding to minimize radiation exposure to Operators.

We will now proceed to the third floor and the Laboratory."

The Hot Cells

"This is the Hot Cell area of the Laboratory. Tank samples are drawn in the Hot Cells, from anywhere in the facility. Lab technicians will use manipulators behind thick shielded glass windows in order to reduce the dose rates. Some basic measurements and analysis like titration, particle size analysis, viscosity, and turbidity can be done in the Hot Cells.

The samples are transferred through a transfer port to a long glovebox in the next room that has a monorail to transport samples."

The Radiological Laboratory

"The samples are moved through the first glove box and loaded onto the shuttle transport. The transport will stop at each of the eleven wing cabinets. The five wing cabinets in this room are for radiological analysis.

Even though these laboratory areas are called Radiological, Inorganic, and Organic, the analysis done in each is really based on the different levels of activity of the samples. This room has five wing cabinets that are predominately gloveboxes, which are for higher contamination samples.

Analysis is expected to be done with Inductively Coupled Plasma, Mass and Emission Spectrometers, Methyl Mercury Analyzers and Total Organic Carbon Analyzers. All the areas will have balances and microwave digesters.

The equipment for these labs has been purchased. The equipment will be installed later. We are working to develop and practice the procedures needed for the analysis that will be used here."

The Inorganic Laboratory

"This is the inorganic laboratory. There are three wing cabinets and two with gloveboxes in this lab. To prevent from losing glovebox vacuum, there is an air lock between the last glovebox and each laboratory hood. This area will have multiple Ion Chromatographs and a Fourier Spectrophotometer, was well as an ICP Mass Spec.

Also, the stand-alone hoods in the back are for reagent preparation."

The Organic Laboratory

"This is the Organic Laboratory. It has three wing cabinets and no glove boxes. In addition to some of the equipment already mentioned, this area will have Gas Chromatographs and High Performance Liquid Chromatographs. To minimize waste from unused samples, all of the wing cabinets have drain sinks for either high or low activity waste.

This is the radiological count room, which will have Liquid Scintillation Counters, Gas Flow Proportional Counters, Alpha Spectrometers, and High Purity Germanium Detectors."

Operating Deck

"This is the Operating Deck. The floor we are on is 39 feet above the ground floor. The length of this room is the entire Central Processing Area.

There are six Dark Cells ahead of us. Inside the cells there are large tanks like the ones you saw earlier in the Alpha Finishing Facility. Each cell has an access port with a shield plug. It is not intended to enter the Dark Cells once the facility becomes operational. To allow human entry, the tanks and associated piping would need to be drained and flushed.

The primary purpose of the Operating Deck is to provide the ability to remove the cross flow filters, through the four round access ports straight ahead.

The overhead bridge crane above will be used to remove and replace the filters through the floor covers in front of us.

The four small rooms on the right contain valves to supply air to the air pulse agitators contained in the tanks that provide mixing capability."

Exit the Building

"That concludes the tour. We are going to exit down the north east stairway and out the way we came in. One last reminder to hold the handrails and watch your step as you're almost done.

Thank you for taking the time to visit SWPF."

(The SWPF tour guides will lead the group back to the bus.)

DWPF and Saltstone Script
For Supplement Tour
June 29th 2016

DWPF Tour Portion

704-S Room 22

(After the Facility Representatives are introduced, make an announcement that a DWPF video will be started.)

"If I can have everyone's attention I would like to start a short video of the Defense Waste Processing Facility (DWPF). Once the video has completed, we will board the bus for a drive around tour of DWPF."

East of 210-S

(Everyone has boarded the bus at this point and the driver has been directed to pull away from 704-S and will start receiving driving directions from the FR as the bus drives around the outside of DWPF.)

"On the Pre-Solicitation Conference Tour in April, we walked through DWPF and saw how canisters are filled at the melter, decontaminated, welded and placed into storage. Today instead, we will drive around the facility and point out some of the exterior support systems."

"On the left of the bus, are buildings and trailers that house the maintenance shops, material and equipment storage, and work planning offices. We also have a simulator identical to our central control room where operators can practice responding to emergencies and abnormal conditions."

"The stack on top of DWPF is the zone 2 exhaust stack. Zone 2 ventilation supports most of the RBAs inside DWPF. Zone 2 and zone 1 supply fans and air handling units are also located on the roof."

"The two white boxes are the chemical process cell purge air compressors. To the right of the compressors are tall metal vaporizers and the bulk nitrogen tank. The compressors and bulk nitrogen systems are the primary and first backup systems designed to prevent flammable gasses from accumulating in vessels located in the chemical process cell."

"The shorter white tank contains liquid argon. Argon gas is supplied to the melter bubblers. The bubblers gently churn the melt pool, increasing the rate at which feed can be added and canisters can be poured. The bubblers are not currently used because of a positive un-reviewed safety question (USQ). However, we anticipate the USQ to be resolved later this year for their use."

422-S / 980-S

“422-S has multiple tanks for storing the chemicals used in the facility. We currently treat sludge with formic and nitric acid. In 2017, we plan to begin the transition to glycolic acid. The major benefit to using glycolic acid is a significant decrease in catalytic hydrogen generation when processing waste. Other chemicals stored here are sodium hydroxide and sodium nitrite.”

“The frit building is where our large totes of bulk frit are delivered and stored. This building also contains the equipment for weighing and mixing the frit with water and dilute formic acid. From here, the frit mixture is pumped to a feed tank on the third level then into the Slurry Mix Evaporator (SME). About 10,000 lbs of frit is added to each SME batch.”

“The 980-S has vessels for chemically treating non-radioactive water prior to releasing to the effluent discharge system. The 980-S also houses the fire pumps that serve both DWPF and SWPF. Behind the 980-S is a 300,000 gallon fire water tank.”

“The cooling tower is the heat sink for DWPF. Almost every system requiring cooling including the melter cooling water, plant air compressors, HVAC chillers, and many others are transferring their heat to this evaporative unit designed to cool 10,000 gallons of water more than 10 degrees fahrenheit every minute.”

Railroad Well / 511-S

“Behind the tall roll-up door is the outer railroad well. Inside you’ll find another rollup door that opens to the inner railroad well. This large air lock is how large equipment can be brought in and out of the building. From the inner railroad well, equipment can be picked up with the main process crane and taken to any of the remotely accessed cells. Melter 1 was removed this way and is now stored in the failed equipment storage vault.”

“The 511-S or the Low Point Pump Pit contains three pump tanks for transferring material between H-Tank Farm, ARP/MCU, and DWPF. Transfer lines from SWPF have been laid most of the way to 511-S. The "big dig" planned for late FY17, will complete all the below grade connections to SWPF on the east side of 511-S. After the big dig, ARP/MCU will continue to operate until SWPF startup testing is nearly complete, at which point jumpers in 511-S will be replaced, isolating the transfers lines to and from ARP/MCU and opening transfers to and from SWPF.”

Southwest Corner

“As we turn the corner, we will pass underneath the 260# steam supply line to DWPF. Steam is supplied by the Amerseco co-generation plant, via H-area. We will then pass under an abandoned line going to the abandoned Benzene Collection Tank, connected to the incineration facility on the other side of the fence. These, along with the Salt Process Cell inside DWPF were part of an unsuccessful attempt to process salt waste.”

“In addition to steam, our electricity is supplied from H-area into switchgear inside 951-S. If we were to lose power, two V-16 diesel generators inside 292-S would provide power to emergency loads. The 292-S also houses the four zone 1 ventilation exhaust fans. They pull air from the

processing cells, through the sand filter before sending it up the stack. Also to the left in the distance, you can see H-Canyon and the 766-H training building."

"On the right, we will pass the bay for the Shielded Canister Transporter (SCT) where filled and welded canisters are retrieved for transfer to the Glass Waste Storage Buildings (GWSB). The SCT was recently autographed by Dr. Regalbuto, the Assistant Secretary for Environmental Management, who rode in the cab during transfer of the 4000th canister to GWSB#2."

221-S North

"As we pass GWSB #1, you may see original and new plugs outside the building as part of modifying storage locations for the double stacking project. We are replacing the 4' thick concrete plugs with shorter metal plugs. This is necessary to make room for one can to sit directly on top of another while maintaining similar shielding on the operating floor."

"The safety grade nitrogen tanks are part of the 2nd backup purge system and will continue to supply the process vessels if the primary air compressors and bulk nitrogen systems fail."

"Many engineers and a few support groups have offices in the trailers surrounding 704-S. There is also a new laboratory trailer supporting the laboratory inside DWPF. The in-house lab analyzes samples from the SRAT, SME, and other vessels to support processing waste."

"This concludes the tour of DWPF and we will now drive over to the Saltstone Facility."

(The FRs will direct the bus driver to the exit gate for DWPF and direct the driver to Saltstone. Upon exiting the DWPF, the FRs will perform any accountability actions needed for the visitors departure.)

Saltstone Walking Tour Portion

(The FRs will direct the bus driver to the Saltstone parking lot and where to stop the bus for the tour group to get off. FRs will perform any actions required for visitor accountability and access to Saltsone. FRs will discuss any safety brief needed before the visitors get off the bus and will divide the group into two smaller groups for touring Saltstone.)

"For the Saltstone tour we will divide into two groups. The front half of the bus will come with me and the back half will follow Mr. Giles. We will not be entering any radiological areas and the bus will pick us up on the other side of the facility."

704-Z

"You are now is the Saltstone administrative building which contains a conference room, offices, and our local radiological control department. We will now walk through the administrative building and enter building 210-Z that contains portions of the Saltstone operations."

Control Room Window

(The FRs will direct the tour group to view the control room via the control room window. As they are viewing into the control room the FRs will be reading the following script.)

"The Saltstone facility is where low level salt solution is processed into a grout for permanent, onsite disposal. The process consist of combining dry and liquid feeds to form a grout which is pumped to disposal units .The dry materials are flyash, slag, and cement; which are blended together and transfer to the mixer. The salt solution or liquid feed is transferred from Tank 50 to the Salt Feed Tank (SFT) and then pumped to the mixer. During mixing, the dry material enters at one end and the salt solution slightly downstream. The final mixure or grout exits from the other end. The grout pump is a peristaltic positive displacement pump. A 4" rubber hose inside each side of the pump gets squeezed as the pump rotates forcing the grout out to the disposal unit where it hardens into Saltstone. The mixer, hopper, and grout pump are in the process room *(FRs point through the window*). "

"The Saltstone control room has 4 operating stations. Primary and support operators control the mixing and transfer operation from the first two DCS stations. A 3rd control room operator maintains communication with the tank farms and monitors the transfer from tank 50 into the SFT. A dry materials operator runs a control panel to weigh and blend the dry materials, and transfer them to the premix feed bin above the process room. During operations you will often find the shift manager and the shift technical engineer in the control room as well. The facility is currently staffed Monday through Thursday, but anticipates operating 24/7 to support SWPF. In our most productive year, we received just over 2 million gallons of Salt Solution. SWPF plans to more than quadruple that number."

"The process room, disposal units, and SFT area are monitored on the video displays. *(If visible, point out grout entering disposal unit, process room, and grout hopper.)* At the end of each day of processing, the mixer, hopper, pump, and transfer line are flushed and a pig is launched through the transfer line. The diameter of the pig is slightly larger than the inside diameter of the grout line. As air pressure forces the pig to the disposal unit, the grout line is cleared of any residual grout and water."

<u>210-Z North</u>

"In 210-Z, there are a couple of maintenance shops, operations offices, electrical equipment, and a compressor room. Inside the compressor room are the plant air compressor, the pig booster, and receivers for both systems.

Dry material silos store the slag, cement, and flyash unloaded from delivery trucks. Air blenders below the silos mix the material together and transfer the mixture pneumatically to the premix feed bin *(point out line from blenders to feed bin).*

The Salt Solution Receipt Tanks (SSRT) are two 60,000 gallon tanks constructed to provide some buffer volume between SWPF and Saltstone. Right now, we must receive salt solution from Tank 50 while processing grout. Once SWPF is online, we will be able to take advantage of a more flexible operating strategy using these vessels. The tanks and supporting equipment are

installed and tied in to the process. A readiness assessment recently finished to startup operations with SSRT #1. SSRT #2 will not be used until SWPF comes online.

Saltstone Disposal Units

(FRs will direct the group down the roadway and to the back side of Saltstone to a general area for viewing the Salstone Disposal Units and grout transfer line. FRs will point out the various facilities as they are discussed.)

"The trailers between the Saltstone Processing Facility and SDU 6 are for construction personnel supporting SDU 6. The will be moved eventually because a future SDU is planned to go right there."

The grout transfer line from the process room is under the shield blocks heading towards SDU 2. It moves up onto the pipe bridge to head towards SDUs 3 and 5. The grout line for SDU 6 is installed on the new pipe bridge but not yet connected the rest of the line. Diverter valves are located at SDU 2, 3, 5, and 6 for directing grout to individual entry ports. The smaller cylindrical units have one centrally located port. SDU 6 will have a center port and 8 additional ports circling the tank halfway between the center and edge."

"Each disposal unit has a drain water collection and pumping system. Another transfer line transfers excess water from grout production and flushes, back to the SFT."

"SDU 2 has extra ventilation equipment not installed on the other units. The ventilation was intended to support salt solution with higher concentrations of Isopar L and was never needed. The equipment common to SDUs 2, 3, 5, and 6 consists of the grout line, the drain water collection system, thermocouple trees, cameras, and passive ventilation huts with HEPA filters."

SDUs 2A, 2B, and the four cells making up SDUs 3 & 5 are all 150' in diameter and about 22' tall. SDU 6 is 375' in diameter and 42' tall. The smaller tanks hold close to 3 million gallons and SDU 6 will hold over 30 million gallons. To complete the liquid waste mission, at least 7 more of these mega-tanks will be necessary."

"That concludes the Saltstone tour."

(FRs will assist with directing the tour group back to the bus.)

Savannah River National Laboratory (SRNL) Script
for Supplemental Tour
(June 29, 2016)

773-51A

(The SRNL tour guides will board the tour bus in front of 773-51A and will be introduced to the visitors. The visitors will be given a quick safety brief by the tour guides and instructions on how the visitors need to proceed through the security and gate access point in 773-51A in order to enter SRNL. To enter SRNL the visitors will be divided into groups of 10. In each group of 10, two escorts will be assigned to abide by SRNL requirements for no more than 5 visitors per escort. A brief summary of SRNL will also be provided to the tour group prior to getting off the bus.)

On the Bus – SRNL Introduction

"The Savannah River National Laboratory SRNL is an applied research and development laboratory at the U.S. Department of Energy's (DOE) Savannah River Site (SRS). SRNL serves DOE and the nation by providing innovative solutions for DOE and other federal agencies across the country and around the world. The laboratory was established in 1951 to provide research and development support for the startup and operation of SRS with its mission of producing nuclear materials for national defense. In 2006, the DOE Office of Environmental Management assumed stewardship responsibilities for SRNL. As the Environmental Management national laboratory, SRNL has prime responsibility for ensuring DOE's technical rigor and innovation needed to mitigate the environmental risk associated with legacy nuclear waste with reduced cost and shortened cleanup schedules.

- Core nuclear capabilities include chemical processing and separations, materials science, tritium/hydrogen and environmental sciences.
- Laboratory programs include environmental stewardship, national security, clean energy, science and technology and nuclear materials management.
- Focused on various parts of tank waste, such as retrieval, treatment development and tank closure.
- Involved in grout formulation for waste tank closures
- Developing "next-generation" cesium removal and actinide removal systems
- All radiological sample materials, other than low level waste, such as waste going into permanent land disposal at Saltstone Facility, are analyzed at SRNL.
- SRNL personnel also support LW operations by conducting specialized scientific and engineering analyses, such as fluid flow, heat transfer, and development of diffusion coefficients."

(At this point everyone will exit the bus and proceed to 773-51A and gain access to SRNL to start the walking tour. Visitor accountability and escort requirements will be verified prior to starting the tour. The tour will be divided into smaller groups of ten or less with each group starting at different areas and then rotating to the other areas until each group has completed all the areas.)

Glass Apparatus Laboratory (GAL)

(The tour group will not enter the GAL, but will look through the doorway as the script below is read)

"The Glass apparatus Laboratory has been part of the site since 1953.

- It is the sole source of custom glassware for SRNL and other EM sites
- Customers are able to work closely with the glassblower to ensure that specifications are met
- Scale-down models of the units enable a better understanding of what is taking place inside of the vessels.
- Models and mockups are used for test and evaluation in support of the Liquid Waste program
- Examples include:
    - Corrosion test vessels
    - Modified chromatography columns
    - Salt stone test vessels
    - Shortpath distilling head
    - Sludge receipt and adjustment tank"

773-A Rollup Door

(The tour group will be walking outside near the location of the unloading bay at 773-A when the tour guide will point to the location and read the below script.)

"The rollup door opens into the area where radioactive materials from other parts of the site are brought in directly to the shielded cells area to be analyzed."

Engineering Development Lab (EDL)

(The tour group will enter the EDL through the offices and will be instructed to put on safety glasses. Tour guides will verify all personnel have their safety glasses on before proceeding. Tour guides will get permission from operations manager if needed before proceeding into the lab. Since the lab is an active operation, the tour guide will determine if the script below should

be read in the office area or in the lab after entering. Tour group will be given a few minutes to view the laboratory before instructed to exit.)

"The engineering development lab is primarily used for five processes; process flowsheet development, process flowsheet validation, process optimization, equipment selection and validation, and flowsheet modeling. Process flowsheet development is the ability to scale up and demonstrate new chemical and physical processes at approximately 1/10 scale. Process flowsheet validation is integration of multiple unit operations and examination of effect of recycles. Process optimization and troubleshooting is the ability to mock-up operational facilities processes and situations. Equipment selection and validation is the ability to test full-scale components, including process control strategies. And flowsheet modeling has the ability to integrate chemistry and engineering to predict behaviors under routine and off-normal conditions. Altogether the Engineering Development Lab forms the foundation for developing processes for field deployment.. In support of the liquid waste program, they produce solvent trims about 2-3 times a year for the modular caustic side solvent extraction unit. In the recent past, they have done scaled testing on next generation solvent in the modular caustic side solvent extraction unit to verify entrainment, carryover and functionality; as well as scaled testing for Saltstone to evaluate wear and filtration testing for salt feed filtration."

773-A B/C Wing Analytical Development Laboratories

(The tour guide will read the script below as he leads the tour group through the hallway in B and C wings of 773-A and points to various access doors with windows to view inside.)

SRNL is equipped with numerous analytical capabilities including laboratories with glove boxes for safe handling of radiological materials and other hazardous materials. Some processes conducted here include waste form formulation, qualification of product during production and waste form qualification, for example Salt and sludge batch qualification, Defense Waste Processing Facility glass qualification, grout, and tank 50 Saltstone characterizations.

- **B-159, Inductively Coupled Plasma - Optical Emission Spectroscopy**
  B-159 lab module houses Analytical Development's Inductively-Coupled Plasma Emission Spectroscopy for high precision elemental analyses.
- **B-123, Organic Characterization**
  B-123 organics laboratory module contains instrumentation for organic compound characterization methods.
- This hallway provides entry into labs on each side. This enables materials to be brought up from the basement to the individual lab modules.
- **B-134, Ionic Characterization**
  B-134 houses Ion Chromatographs, which are used extensively in waste tank characterization sampling for waste acceptance criteria/waste compliance plan verification.

- **B-154/158, Nuclear/Radiochemistry Analyses**
  The double lab module B-154/158 is where much of the prep work is performed for radiochemical separations.
- **C-134/138, Materials Characterization**
  C-134/138 glovebox train houses Scanning Electron Microscope, a unique capability for studying radioactive materials.

<u>Shielded Cells</u>

(The tour group will enter the area where activities are conducted using shielded cells. Once inside this area the tour group will be gather together and the script below will be read. The tour group will then have a few minutes to observe the area before exiting. The shielded cells are located in a RBA and will require the visitors to be surveyed before exiting. Tour guide with assistance from contractor personnel will assist in this process.)

You are standing in front of a row of shielded cells that provide the laboratory the ability to safely work with a wide variety of highly radioactive samples. Each cell or work station is 6'x6' and enclosed in 3' high density concrete along with a 1/8 inch stainless steel liner with leaded glass that is 3'x3'. The lab contains two groups or blocks of cells. Cell block A has six cells and is equipped with a one-ton crane while cell block B has 10 cells and two one-ton cranes."

"The cells are equipped with an in-cell gamma counter to measure radiation rates, a shielded optic microscope, and an examination periscope with 100x capability.

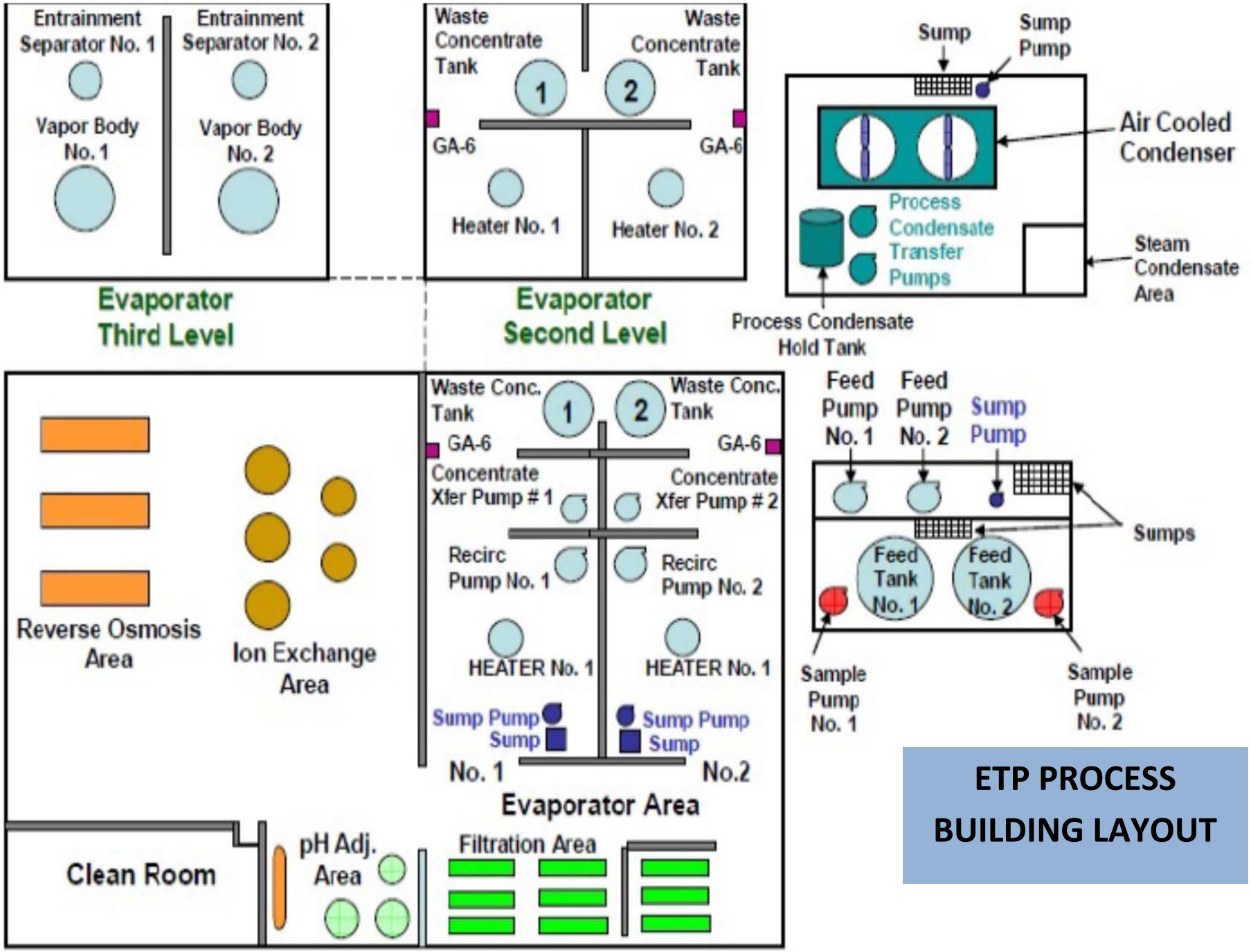
"In addition to the operating cells, the facility maintains a set of non-radioactive mock-up cells that provide full-scale replicas of the footprint and operational capability of the radioactive cells, including the manipulators."

"Recent support to the liquid waste program include:

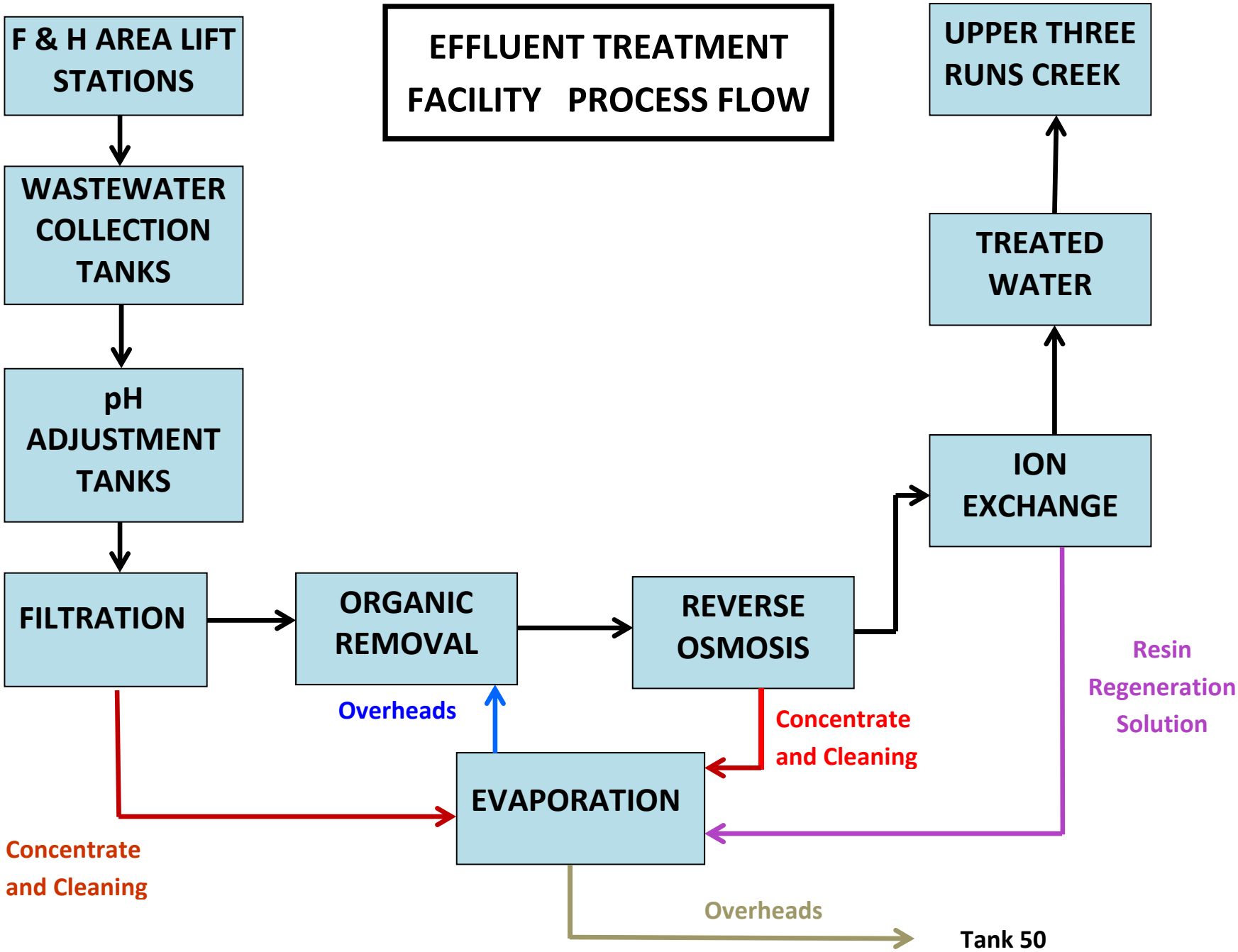
- Demonstration of chemical process cell and glass production with real waste for each sludge batch and characterization of the feed,
- Characterization of actual waste samples for feed processing across the Tank Farm,
- Enrichment Control and Corrosion Control characterization of Evaporator Feed samples,
- Tank Closure Samples and Oxalic Acid cleaning samples,
- Demonstration of salt processing for each Salt Batch and characterization of the feed, and
- Waste Release testing to corroborate assumptions in the Performance Assessment for the tank farms."

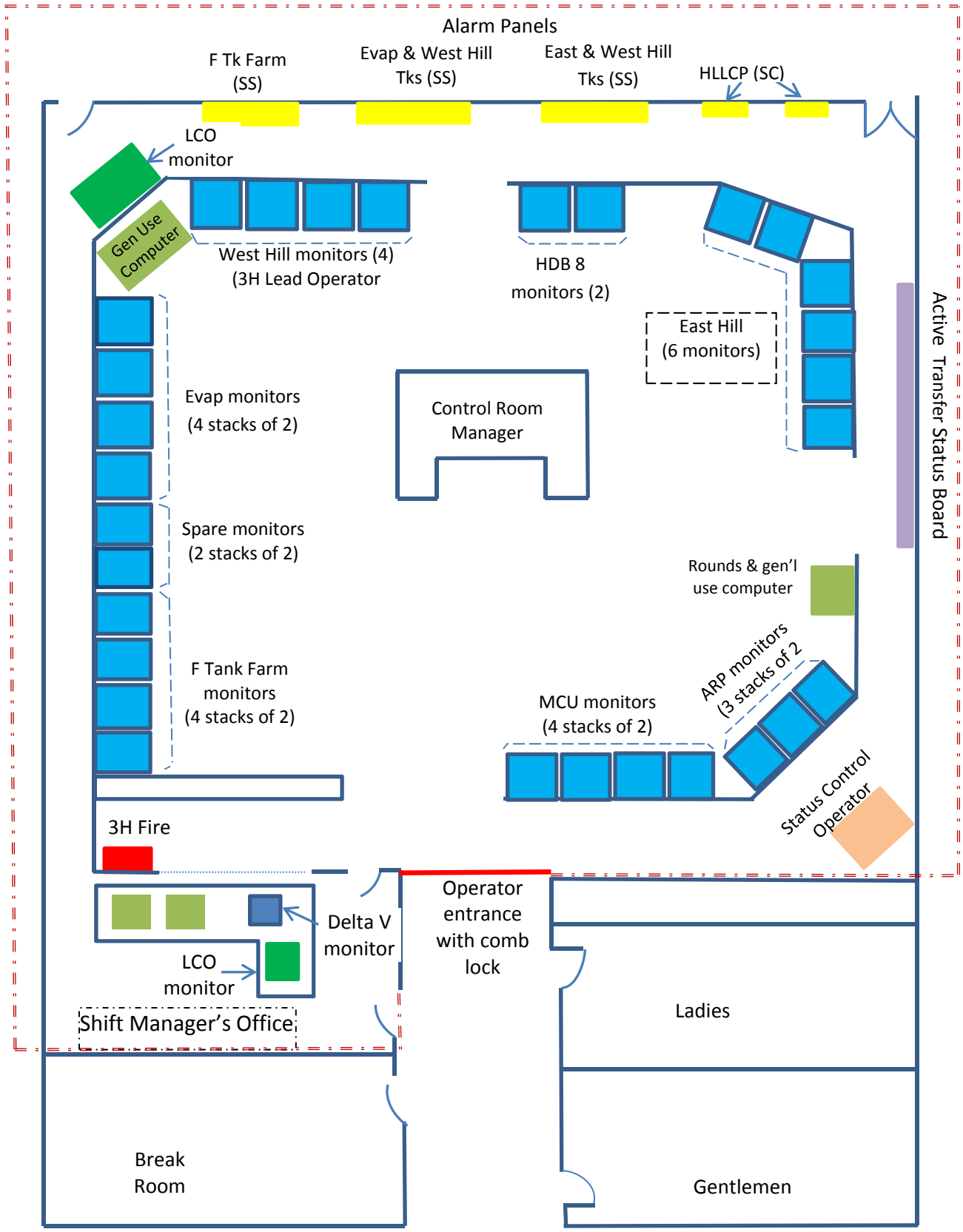
"With the large volume of radionuclides that is needed for characterization to support Tank Closure, the Waste Release testing is extremely labor intensive. It normally takes multiple cells and significant time to decontaminate samples to meet detection limits. The liquid waste system plan limits (or assumes) only 2 samples per year because of the drain on

resources/equipment and shielded cells requirement. The ability to reduce the analyte list or make changes to automate activities in the cell, could potentially increase throughput above the current limit."



ETP PROCESS BUILDING LAYOUT


EFFLUENT TREATMENT FACILITY PROCESS FLOW
F & H AREA LIFT STATIONS
WASTEWATER COLLECTION TANKS
pH ADJUSTMENT TANKS
FILTRATION
ORGANIC REMOVAL
REVERSE OSMOSIS
ION EXCHANGE
TREATED WATER
UPPER THREE RUNS CREEK
EVAPORATION
Overheads
Concentrate and Cleaning
Concentrate and Cleaning
Resin Regeneration Solution
Overheads
Tank 50



241-2H
3H Control Room

Legend

- Boundary for control room operators
- Active Transfer Status Board
- LCO Monitors
- Operations Monitors
- Status of Lockouts
- General Use Computers